The Claimed Invention Is:

1. A method of measuring the speed at which a variational gravitational field propagates, the gravitational field relating to a planet, the planet having an object, the object having sufficient mass to change the gravitational field, the method comprising:

moving a satellite in orbit around the planet so that it passes over the object;

determining the time interval Δt_g between a predetermined time and the moment that the velocity of the satellite changes due to a change in the gravitation field;

determining the time interval Δt_{em} it takes an electromagnetic signal to travel from the object to the satellite, the electromagnetic signal beginning to travel at the predetermined time; and

calculating the speed of the gravitational field according to the equation:

$$v_g = c\frac{\Delta t_{em}}{\Delta t_g}$$

where v_g is the speed at which the variational gravitational field travels and c is the speed of light.

2. The method of claim 1 wherein determining the time interval Δt_g includes measuring the speed of the satellite using a Doppler radar beginning at the predetermined time.

3. The method of claim 2 wherein determining the time interval Δt_{em} includes transmitting an electromagnetic signal to the object and detecting the reflected signal at the satellite.

4. A method of measuring the speed at which a variational gravitational field propagates, the gravitational field relating to a planet, the planet having an object, the object having sufficient mass to change the gravitational field, the method comprising:

moving a satellite in orbit around the planet so that it passes over the object;

determining the distance L_g that a satellite travels from a predetermined position and a second position that coincides with the moment that the velocity of the satellite changes from the velocity that the satellite was traveling at the predetermined position due to a change in the gravitation field;

determining the distance L_{em} that the satellite travels from the predetermined position to a third position that coincides with the moment that an electromagnetic signal to completes travel from the object to the satellite; and

calculating the speed of the gravitational field according to the equation:

$$v_g = c\frac{L_{em}}{L_g}$$

where v_g is the speed at which the gravitational field travels and c is the speed of light.

5. The method of claim 4 wherein determining the distance L_g includes measuring the position of the satellite.

6. The method of claim 4 wherein determining the distance L_{em} includes measuring the position of the satellite.